

Three species of the genus *Upogebia*  
(Decapoda, Crustacea) in Japan

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Three species of the genus *Upogebia* are known in Japan; *U. major* (de Haan), *U. issaeffi* (Balss) and *U. yokoyai* Makarov. These are closely related in characteristics such as rostrum, eye-stalks, abdomen, pleurae, telson and uropods except 1st legs. On 3rd maxillipeds *U. yokoyai* is unique in form of its exopod consisting only of a simple segment, as in *Gebicula monochela* (Sakai, 1967). It is interesting to note that *U. yokoyai* is often found among the collections of *U. major*, bearing a parasitic shell, *Pereginamor ohshimai* Shoji (Pelecypoda, Mollusca), and *U. issaeffi* is firstly reported from Yellow Sea, the southern limit of species.

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1. *Upogebia (Upogebia) major* (de Haan, 1849)

(Fig. 1, A-C)

*Gebia major* de Haan, 1849, p. 165, pl. 25, fig. 7; Miers, 1879, p. 52; Ortmann, 1891, p. 54, pl. 1, fig. 7a-b; Balss, 1914, p. 90; Nakazawa, 1927, p. 1037, fig. 1997; Yokoya, 1930, pp. 543-544, fig. 4.

*Upogebia major*: Miyazaki, 1936-1937, pp. 317-325; Ishikawa, 1938; Kubo and Nakazawa, 1947, p. 755, fig. 2176; Kamita, 1956, pp. 59-61, fig. 45; Utinomi, 1958, p. 63, pl. 32, fig. 1; Miyake, Sakai and Nishikawa, 1962, p. 124.

*Upogebia (Upogebia) major*: Borradaile, 1903, p. 543; Parisi, 1917, p. 23; de Man, 1928, pp. 23, 39, 45, 62; Makarov, 1938, pp. 54-57, figs. 16-17; Miyake, 1961, p. 10.

It reaches 113 mm. Rostrum without any spines on lower margin. One or sometimes two ocular spines above antennal peduncle. Antennular 1st segment bears a small tooth distally on infero-inner margin, antennal 3rd one with a small apical protuberance. Epistome branched out into two or three spines. Exopod of 3rd maxillipeds consists of proximal segment and flagellum, the anterior slightly fails to reach distal end of ischium, and the latter reach middle of merus.

*Colour in life*.—Body dark-green.

*Habitat*.—Common all over Japan, living in maddy sand at protected coastal area or estuary of river, and is utilized as a fish bait especially in Seto Inland Sea and Yatsushiro, the western Japan.

*Materials examined*.—Reclaimed land of Usu, Uchiura Bay, Hokkaido, 1 ♀ (bl. 110 mm), ZLKU. 9076, Mar. 11, 1963, Kazuo Oshima leg.; Kanazawa-Hakkei, Tokyo Bay, 2 ♂♂ (bl. 103-104), 10 ♀♀ (bl. 88-113), ZLKU. 10426, Aug. 7, 1960, K. Sakai leg.; The same place, 4 ♂♂ (bl. 64-100), 2 ♀♀ (bl. 52-94), ZLKU. 10438, Oct. 16, 1960, K. Sakai leg.; The same place, 2 ♂♂ (bl. 71-89), ZLKU. 10444, Jan. 5, 1961, K. Sakai leg.; At estuary of Ohta river, Ujina-machi, Hiroshima, 1 ♀ (bl. 59), ZLKU. 8964, Apr. 4, 1962, Reichiro Hirota leg.; The same place, 3 ♂♂ (bl. 94-104), 1 ovig. ♀ (bl. 97), ZLKU. 8965a, Apr. 4, 1962, R. Hirota leg.; The same place, 1 ovig. ♀ (bl. 100), ZLKU. 8970, Apr. 4, 1962, R. Hirota leg.; The same place, 1 ♂ (bl. 79), 1 ♀, ZLKU. 10446, Oct. 14, 1958, Akio Taki leg.; Ugu-shima, Hakata Bay, 2 ♂♂ (bl. 46-64), 3 ♀♀ (bl. 43-73), ZLKU. 10448, July 1, 1929, Hiroshi Ohshima and Kohachi Shoji leg.; The same place, 1 ♀ (bl. 39, bearing *Pereginamor ohshimai* Shoji), ZLKU. 10453, July 1, 1929, H. Oshima and K. Shoji leg.; Najima, Hakata Bay, 3 ♂♂ (bl. 44-58), 2 ♀♀ (bl. 49-51), ZLKU. 10454, May 11, 1960, K. Sakai leg.; The same place, 1 ♂ (bl. 31), ZLKU. 10459, Sept. 23, 1960, K. Sakai leg.; The same place, 6 ♂♂ (bl. 46-52), 2 ♀♀ (bl. 40-45), ZLKU. 10460, May 11, 1960, K. Sakai leg.; At estuary of Muromi river, Hakata Bay, 11 ♂♂ (bl. 42-80), 7 ovig. ♀♀ (bl. 74-86), 5 ♀♀ (bl. 45-74), ZLKU. 10469, Apr. 7, 1963, K. Sakai leg.; The same place, 7 ♂♂ (bl.

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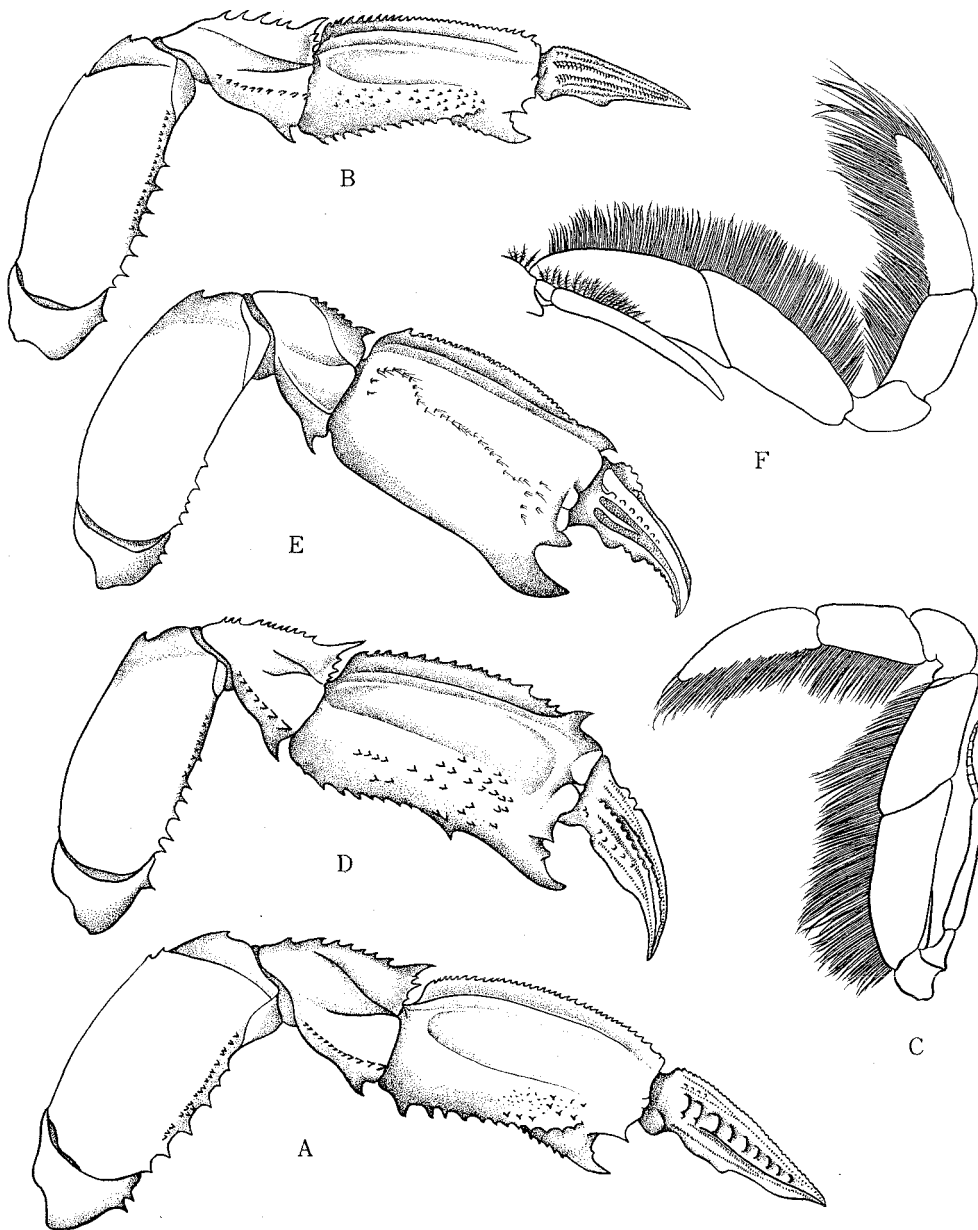


Fig. 1 A. First leg of male in *Upogebia (Upogebia) major*,  $\times 2.3$ ; B. First leg of female in the same species,  $\times 2.6$ ; C. Third maxilliped of the same species,  $\times 4$ ; D. First leg of male in *Upogebia (Upogebia) issaeffi*,  $\times 2$ ; E. First leg of male in *Upogebia (Upogebia) yokoyai*,  $\times 2.7$ ; F. Third maxilliped of the same species,  $\times 6$ .

47-57), 1 ovig. ♀, 6♀♀ (bl. 45-69), ZLKU. 10492, Apr. 9, 1963, K. Sakai leg.; Odo, Hakata Bay, 1♂ (bl. 28), 2♀♀ (bl. 28-29), ZLKU. 3354, Aug. 7, 1952, Chugo Tsuji leg.; Arao, Ariake Sea, 1♂ (bl. 92), ZLKU. 4844, Jun. 4, 1958, S. Miyake leg.; Shimabara, Ariake Sea, 14♂♂ (bl. 44-83), 16♀♀ (bl. 52-103), ZLKU. 10505, May 17, 1961, K. Sakai leg.; The same place, 1♀ (bl. 76, bearing *Pereginamor oshimai* Shoji), ZLKU. 10535, May, 17, 1961, K. Sakai leg.; Ariake Sea, 1♂ (bl. 100), ZLKU. 10536, Apr. 19, 1933, S. Miyake leg.

*Distribution*.—Olga Bay; Vladivostok region; Uchiura Bay, Hokkaido; Asadokoro, Mutsu Bay; Tokyo Bay (Katsura; Kada; Kanazawa-Hakkei); Sagami Bay; Tsu; Kii; Seto Inland Sea (Asakuchigun, Okayama Pref.; Onomichi; Ujina, Hiroshima; Asa, Yamaguchi Pref.; Shuso-gun, Ehime Pref.; Saijo); Tottori; Tsuyazaki, Fukuoka Pref.; Hakata Bay (Najima; Muromi; Odo; Ugu-shima); Itoshima-gun, Fukuoka Pref.; Ariake Sea (Arao; Shimabara); Yatsushiro; Korea (North and south Keisho; South Heian).

## 2. *Upogebia (Upogebia) issaeffi* (Balss, 1913)

(Fig. 1, D)

*Gebia Issaeffi* Balss, 1913, p. 239 (non vidi).

*Gebia (Upogebia) Issaeffi*: Balss, 1914, pp. 89-90, figs. 48-49.

*Upogebia Issaeffi*: Yokoya, 1939, p. 278.

*Upogebia (Upogebia) Issaeffi*: de Man, 1928, pp. 23, 39, 41.

*Upogebia (Upogebia) issaeffi*: Makarov, 1938, pp. 59-61, figs. 19-20.

This species likes *U. major* in features. Rostrum with 3 spinules on each of lateral margins, lower margin unarmed (♀, ZLKU. 3650, 7295) or armed with a small tooth (♂, ZLKU. 9618). Hind margin of cervical groove bears a row of indistinct granules just before crossing points with linea thalassinica, and a few behind it. One ocular spine distinct. Antennular 1st segment with a small distal spine on lower margin; antennal 3rd one bears a spinule on infero-inner margin, scaphocerite of a simple oval leaf in form, and epistome bispinose.

In female's 1st legs upper surface of dactylus bears a row of tubercles in parallel to that of same-sized tubercles on its external border, while in male's it is distinguished as a keel with a row of indistinct equidistant tubercles in the same place. Propodus bears a denticulated crest on upper margin with none of a sexual difference found as described by Makarov (1938).

*Materials examined*.—At east coast of Munakata-Oshima I., Fukuoka Pref., 1♀ (bl. 65 mm), ZLKU. 7295, Mar. 10, 1959, Yasuo Matsuo leg.; Off Shimabara, Ariake Sea, 1♀ (bl. 65), coll. by trawl-net, ZLKU. 3650, May 23, 1954, Tetsushi Senda leg.; Yellow Sea (35°02'N, 121°56'E), 50 m deep, 1♂, ZLKU. 9618, Oct. 16, 1962, Hideo Yamashita leg.

*Type locality*.—Vladivostok.

*Distribution*.—Vladivostok region; Onagawa, Miyagi Pref.; Munakata-Oshima I., Fukuoka Pref.; Off Shimabara, Ariake Sea; Yellow Sea.

## 3. *Upogebia (Upogebia) yokoyai* Makarov, 1938

(Fig. 1, E-F)

*Gebia affinis* Yokoya, 1930, pp. 544-546, fig. 4a-b.

*Upogebia (Upogebia) yokoyai* Makarov, 1938, pp. 57-59, fig. 18.

Body length of 65 mm. Rostrum with 4 lateral tubercles, anterior margin with 1-2 ocular spines, hind margin of cervical groove with a row of scanty hairs and tubercles. Scaphocerite of a rounded leaf, and epistome bispinose. Third maxillipeds bear exopod simple without a segmented flagellum, only a remarkable characteristics separating this species from *U. major* and *U. issaeffi* (Fig. 1, F).

First legs are described in detail by Yokoya (1930); dactylus in female is more slender than in male, with more scanty and undeveloped tubercles; outer surface bears a row of hairs just below a row of tubercles on its upper margin, diverging in the proximal half, inner surface is studded with a few tubercles, and continuing them a row of tubercles runs distally along lower margin. Concerning to carpus Yokoya is pointed out that "The carpos is armed with a series of small acutely pointed teeth near the upper surface; this series of teeth is more prominent than that found in

*U. issaeffi*.....". However, after observing both male's and female's specimens this series of teeth are indistinct or nothing, while in *C. major* and *C. issaeffi* that is much distinct.

*Habitat*.—This species is collected together with *Upogebia (Upogebia) major* (de Haan).

*Materials examined*.—At estuary of Uchiyama river, Kinosaki-gun, Hyogo Pref., 1♂ (bl. 48 mm), 1♀ (bl. 61), ZLKU. 3367, Sept. 28, 1939, Masuzo Ueno leg.; At estuary of Ohta river, Ujina-machi, Hiroshima, 1♂ (bl. 67), ZLKU. 8965b, Apr. 4, 1962, R. Hirota leg.; The same place, 5♂♂ (bl. 49-60), 5♀♀ (bl. 55-60), all bearing Bopyrus, ZLKU. 10537, Oct. 19, 1958, A. Takai leg.; Iwamatsu-cho, Iyo, Ehime Pref. 2♀♀ (bl. 34-38), ZLKU. 3456, Apr. 1953, Y. Takada leg.; Ugu-shima, Hakata Bay, 2♂♂ (bl. 44, bearing *Peregrinamor ohshimai* Shoji, and bl. 50), 1♀ (bl. 40), ZLKU. 10547, July 1, 1929, H. Ohshima and K. Shoji leg.; The same place, 1♀ (bl. 47), ZLKU. 10550, July 1, 1929, H. Ohshima and K. Shoji leg.; Shimabara, 2♂♂ (bl. 49-51), ZLKU. 10551, May 17, 1961, K. Sakai leg.; At estuary of Sumiyo river, Honohoshi, Amami-Oshima, 1♂ (bl. 34), ZLKU. 10553, 1♀ (bl. 19), ZLKU. 9700, Aug. 1963, T. Shino leg.

*Distribution*.—Mutsu Bay (Asadokoro; Nonai); Kinosaki, Hyogo Pref.; Ujina-machi, Hiroshima; Iwamatsu-cho, Ehime Pref.; Ugu-shima, Hakata Bay, Fukuoka Pref.; Shimabara, Ariake Sea, Nagasaki Pref.; Amami-Oshima.

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